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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,778	10/11/2001	Luc Ouellet	12251-US	7550

23553 7590 04/06/2005

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EXAMINER	
HOFFMANN, JOHN M	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,778	OUELLET ET AL.	
	Examiner	Art Unit	
	John Hoffmann	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-19,24 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-19, 24-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by OHJA 5979188.

Step a) See Ohja, col. 3 lines 1-10, 54-55 and 62-67 which disclose having a silica buffer layer on both sides of the silicon substrate/wafer by PECVD.

Step/limitation b). Col. 2, lines 17-20 reasonably disclose a heating treatment that occurs prior to a creation of the core layer on the buffer layer. Claim 6 discloses b)i) . Step b)ii): Col. 1, lines 25-40 discloses that one can use annealing times longer than 30 minutes; col. 4, lines 44 (and elsewhere) disclose annealing temperatures above 800 C. It is further noted that col. 4,lines 25-29 also teaches using annealing times longer than 30 minutes when using "convention resistively heated furnaces"

Step b)iii) is deemed to be inherent; see also col. 3, lines 34-35. As to the various b) limitations of decreasing stress, elastic deformation, etc. it is deemed that such would have be an inherent result because Ohja does the same thing that Applicant does.

From MPEP 2145

II. ARGUING ADDITIONAL ADVANTAGES OR LATENT PROPERTIES

Prima Facie Obviousness Is Not Rebutted by Merely Recognizing Additional Advantages or Latent Properties Present in the Prior Art

Mere recognition of latent properties in the prior art does not render nonobviousness an otherwise known invention. In re Wiseman, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) (Claims were directed to grooved carbon disc brakes wherein the grooves were provided to vent steam or vapor during a braking action. A prior art reference taught noncarbon disc brakes which were grooved for the purpose of cooling the faces of the braking members and eliminating dust. The court held the prior art references when combined would overcome the problems of dust and overheating solved by the prior art and would inherently overcome the steam or vapor cause of the problem relied upon for patentability by applicants. Granting a patent on the discovery of an unknown but inherent function (here venting steam or vapor) "would re-move from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art." 596 F.2d at 1022, 201 USPQ at 661.); In re Baxter Travenol Labs., 952 F.2d 388, 21 USPQ2d 1281 (Fed. Cir. 1991) (Appellant argued that the presence of DEHP as the plasticizer in a blood collection bag unexpectedly suppressed hemolysis and therefore rebutted any prima facie showing of obviousness, however the closest prior art utilizing a DEHP plasticized blood collection bag inherently achieved same result, although this fact was unknown in the prior art.).

"The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious." Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985) (The prior art taught combustion fluid analyzers which used labyrinth heaters to maintain the samples at a uniform temperature. Although appellant showed an unexpectedly shorter response time was obtained when a labyrinth heater was employed, the Board held this advantage would flow naturally from following the suggestion of the prior art.). See also Lantech Inc. v. Kaufman Co. of Ohio Inc., 878 F.2d 1446, 12 USPQ2d 1076, 1077 (Fed. Cir. 1989), cert. denied, 493 U.S. 1058 (1990) (unpublished — not citable as precedent) ("The recitation of an additional advantage associated with doing what the prior art suggests does not lend patentability to an otherwise unpatentable invention.").

In re Lintner, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972) and In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990) discussed in MPEP § 2144 are also pertinent to this issue.

Step c) See figure 1, and col. 3, lines 50-54. Col. 2, lines 17-20 teaches annealing only the buffer layer – which would necessarily require that the core is not deposited until after the buffer heat treatment step b).

Step d) see col. 2, lines 30-45 which teaches annealing of the core to a temperature in excess of 600 C. As above the ramping steps are taught or necessarily inherent as are long annealing times. As to the various step c) limitations of tensile stress, etc. it is deemed that such would have be an inherent result because Ohja does the same thing that Applicant does.

Step e) See feature 104.

AS to the stabilization temperature – it is deemed that room temperature – or whatever temperature the Ojha wafer is (prior to the heat treating) is the stabilization temperature. The term has not been defined/limited to anything which would exclude such a limitation.

Claim 12 and 18 are clearly met.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-7, 12-13, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojha 5979188.

In alternative/addition to what Ojha teaches as discussed above: it would have been obvious to heat the structure for several hours if one does not have access to a rapid thermal annealing device and the only heating apparatus available is the resistive

type of Ojha col. 4, line 38. Col. 4, lines 25-39 and col. 1, lines 26-30 clearly discloses one can heat for the long period of times to provide the anneal.

Claims 4-5: it would have been obvious to have the device at whatever temperature one desires for as long as one desires prior to the beginning of the real process – because it does not matter to the processing.

Claims 6-7, 13, 19: Ojha does not disclose the claimed ramping rate. However, col. 2,lines 5-10, disclose that the times and temperatures "critical" and that they depend on the compositions. It would have been obvious to perform routine experimentation to determine all the optimal times and temperatures for the annealing (including the duration of the ramp-up which inherently determines the rate of ramp-up) because they are critical for having low loss. Clearly if one decided to use a glass composition that has lower melting/softening/annealing point, one would end up using lower processing temperatures.

Claim 12 and 18 are clearly met.

Claims 4, 5, 8-11, and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojha as applied to claim 1 above, and further in view of Liu 5094984.

Ojha does not teach the PECVD temperature (i.e. the first predetermined temperature that the wafer is prior to the heating for annealing). Col. 7,lines 29-31 of Liu discloses that the preferred temperature for PECVD is 300-450: it would have been an obvious matter of design choice and/or routine experimentation to use a temperature about 400 C, since this is what is preferred. Thus the substrate would be around 400

degrees prior to the annealing. It would have been obvious to have it and keep it at such a temperature for as long as necessary prior to transferring it to the annealing process. One would not want to cool it down because it would just take extra energy to just heat it up again. (This applies to claims 4-5 and 8-9)

Claims 10-11: it would have been obvious to ramp at what ever rate is most convenient.

Claims 14-15: Liu teaches using nitrogen. It would have been obvious to use nitrogen because it is inexpensive and inert. One would not want to use air or other gases that would/might be reactive with the substrate/waveguide.

Claim 16: if there is any nitrogen, it would have been obvious to have it constant for at least part of the process, so as to keep all the parameters constant. If one changes the flow rate, the heat flow would inherently change, requiring changing the energy input, etc.

Claim 17: it would have been obvious to use whatever appropriate flow rate works, depending upon the size of the substrate. Many large substrates would require more of a flow rate than a single small substrate.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ojha as applied to claim 1 above, and further in view of Henry 3867218.

Ojha does not teach the extra layers. It is well known in the silicon processing art to provided silicon nitride layers to protect against atmospheric influences. See col. 1,

lines 18-20. It would have been obvious to protect the Ohja device by placing silicon nitride layers on the product surfaces so as to better protect the device.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

It is argued that Ojha does not disclose applying both buffer layers prior to depositing the core layer.

First it is noted that rearranging the order of the steps is generally not a patentable invention. **From MPEP 2144.04**

C. Changes in Sequence of Adding Ingredients
Ex parte Rubin , 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter impregnated with a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.).

Presently examiner is not aware of any evidence that claimed order results in a new and unexpected result. Applicant's assertion of importance is not commensurate with a showing of new and unexpected results.

More importantly, it is deemed that Ojha discloses that the application of both buffer layers prior to forming the core. As indicated above, col. 2, lines 17-20

reasonably suggest annealing the buffer layer prior to deposition of the core layer. And col. 4, lines 1-3 teaches creation of both buffer layers at the same time. Furthermore, since Ojha teaches that second buffer counteracts any tendency of the oxides to cause distortions (col. 1, lines 15-20), if one were to put the bottom buffer layer on after the core layer, it may be too late to counteract the distortions.

As to the argument that Ohja deposits the core before the anneal (col. 4, line 5 of Ojha). Such only refers to the highest temperature of anneal – it is not limited to the anneal of the buffer. As indicated above, col. 2,liknes 17-20 reasonably suggests annealing prior to depositing the core.

As to the arguments regarding "design choice". There doesn't appear to be any rejections on record based on design choice.

As to the argument that rejections based on routine experimentation are not appropriate for parameters shown to have special significance. Examiner is not aware of any legal or factual standard relating to "special significance". Whereas Examiner is well aware of most secondary considerations that can be used to overcome a showing of prima facie obvious, he has no awareness of "special significance" as being a relevant secondary consideration. Applicant should supply legal basis for the assertion that special significance is relevant – and also point how the evidence of record supports a showing of "special significance."

If the "special significance" is a new and unexpected result, applicant is reminded of the following:

applicants bear the burden of establishing that the claimed subject matter in fact imparts unexpected properties. See In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). It is deemed that applicant have not met their burden of explaining how the results reported in the specification and affidavit can be extrapolated from the limited instances presented so as to be guaranteed as attainable through practicing the invention as broadly claimed. Moreover, applicant have not met their burden of establishing that the reported variables would have been truly unexpected to a person of ordinary skill in the art It is well established that the evidence relied on to establish unobviousness must be commensurate in scope with the claimed subject matter. See In re Kerkhoven, 626 F.2d 846, 851, 205 USPQ 1069, 1072-1073 (CCPA 1980) and IN re Clemens, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

31 March 05

John Hoffmann
Primary Examiner
Art Unit 1731

jmh